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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/629,696	NG ET AL.	
	Examiner	Art Unit	
	James A Thompson	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 May 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 August 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 3-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin (US Patent 5,742,703).

Regarding claim 1: Lin discloses a method for processing gray level image data (column 3, lines 1-3 of Lin). Said method comprises subjecting the gray level image data to halftone screen processing to form halftone processed screen image data (column 3, lines 1-20 of Lin).

Said method further comprises analyzing a current pixel of the halftone processed screen image data to a test criterion to determine if the current pixel is a possible saturated color text image (column 7, lines 14-18 and lines 24-27 of Lin). Grayscale values are stored and processed in parallel by two different halftone processors, namely channel A and channel B (column 7, lines 2-9 of Lin). Channel A thresholds the grayscale values (column 7, lines 16-18 of Lin) for data that is saturated or nearly saturated in order to distinguish regions of the image that are text or line art (column 7, lines 24-27 of Lin).

If the current pixel meets the criterion for being a pixel of a possible saturated color text image, the gray level image enhanced processing modification of the current pixel for output to a printer or display is selected (figure 2(80,86,88) and column 8, lines 40-46 of Lin). Buffer 1 (figure 2(80) of Lin) stores the halftoned data from channel A (column 8, lines 21-23 of Lin). The halftoned data from channel A undergoes pattern matching (column 7, lines 47-55 of Lin), which is used so that said halftone data can undergo high-addressability gray-scale or sub-pixel processing (figures 4a-4d; and column 8, lines 1-6 and lines 10-14 of Lin). If the image data at the point that is being output is tagged as text or line art, then the data from buffer 1 is output (column 8, lines 40-46 of Lin).

If the current pixel does not meet the test criterion for being a pixel of a possible saturated color text image selecting the current pixel gray level value as processed by the halftone screen processing for output to a printer or display (figure 2(80,86,88) and column 8, lines 40-47 of Lin). Buffer 2 (figure 2(86) of Lin) stores the halftoned data from channel B, which is the grayscale image data (column 8, lines 38-40 of Lin). If the image data at the point that is being output is not tagged as text or line art, then the data from buffer 2 is output (column 8, lines 40-47 of Lin).

Regarding claim 3: Lin discloses that in the step of analyzing, the current pixel and plural neighboring pixels to the current pixel are examined relative to a threshold (column 7, lines 20-27; and column 8, lines 10-14 of Lin). Each pixel is examined relative to a threshold value that determines whether or not a pixel is in saturation, and therefore either text or line art (column 7, lines 20-27 of Lin). A pixel with plural

neighboring pixels is used in determining if a particular pattern exists for the purpose of determining a higher resolution sub-pixel image signal (figures 4a-4d and column 8, lines 10-14 of Lin).

Regarding claim 4: Lin discloses that the threshold value is a variable that is determined for use in the binarizing block (figure 2(72) of Lin). It is preferred that the threshold value is set to about 95% of the maximum value (column 7, lines 24-26 of Lin). However, this is done for the purpose of making sure that the continuous-tone portions of the image are not inadvertently mistaken for text or line art (column 7, lines 26-27 of Lin). Since the range of the desired threshold is variable (column 7, lines 25-26 of Lin), the threshold is an input variable to the binarizing block (figure 2(T,72) and column 7, lines 18-21 of Lin), and the quality and characteristics of different images are inherently variable, then the threshold is adjustable.

Regarding claim 5: Lin discloses that one of the screen processors has a screen frequency of at least 200 lines per inch (column 10, lines 36-45 of Lin).

Regarding claim 6: Lin discloses that a current pixel meeting the criterion of being a saturated color text image has its gray level value adjusted to a maximum value (column 7, lines 16-20 and lines 24-27 of Lin). When the current pixel is processed by channel A, the grayscale value of said current pixel is thresholded (column 7, lines 16-20 of Lin). Then, said current pixel saved as a single bit (column 7, lines 28-32 of Lin), which means that it is set to either on or off. Setting said current pixel to either on or off essentially the same as setting an 8-bit grayscale value to either 0 or 255, especially since the single bit value determines whether the entire pixel is either all black or all

white. Therefore, if the grayscale value of said current pixel is above the threshold value, then said current pixel is adjusted to the maximum value. The thresholding operation is performed prior to gray level enhancement processing (figure 2(74,78) of Lin). In figure 2 of Lin, the binarization (figure 2(72) of Lin) occurs before the pattern matching (figure 2(78) of Lin). The pattern matching block involves in part the rendering of grayscale or sub-pixel image signals (column 7, lines 38-44 and column 8, lines 1-6 of Lin), which is essentially gray level enhanced processing.

Regarding claim 7: Lin discloses that, in gray level enhanced processing, a substantially binary image file is modified with gray level pixels of a density less than maximum density (figures 4a-4d and column 8, lines 1-6 of Lin). Channel A binarizes the image (column 7, lines 16-18 of Lin). The binarized data is then processed to create gray-scale or sub-pixel image signals (figures 4a-4d and column 8, lines 1-6 of Lin). Said processing is performed in order to render the image in an acceptable manner (column 8, lines 2-3 of Lin), which means that artifacts such as jaggedness are removed and smooth edge transitions are provided (figures 7 and 8; and column 11, lines 39-43 and lines 52-55 of Lin).

Regarding claim 8: The arguments regarding claim 7 are incorporated herein. Furthermore, the substantially binary image file can be a binary image file since all of the pixels in the image file are binarized by the binarizer (figure 2(72) and column 7, lines 14-18 of Lin).

Regarding claim 9: Lin discloses that a set of color space coordinates can be used for the image data (column 6, lines 12-21 of Lin). Since the invention disclosed by

Lin works in terms of single colors (column 6, lines 17-21 of Lin), each color is processed separately. Each color of the image data is binarized by channel A (column 7, lines 16-21 of Lin) and processed as grayscale data by channel B (column 8, lines 24-27 of Lin). Therefore, the image data stored in the buffers is essentially a color separation file since a separate bitmap for each color is stored as part of the overall image data.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 5,742,703) in view of Mongeon (US Patent 5,710,824) and Yamaguchi (US Patent 5,832,301).

Regarding claim 10: Lin discloses the use of multiple colors in printing (column 6, lines 12-21 of Lin). Lin does not disclose expressly that the image data is adjusted for color saturation according to a personal preference; and that the image data is already rasterized.

Mongeon discloses that the image data is adjusted for color saturation according to a personal preference (column 1, lines 3-7; and column 6, lines 32-37 of Mongeon). The color gamut of image data is adjusted based on the aesthetic appearance of an

image (column 1, lines 3-7 of Mongeon), which would inherently relate to personal preference. Adjustment of the color gamut of an image includes the adjustment of the image data based on color saturation (column 6, lines 32-37 of Mongeon).

Lin and Mongeon are combinable because they are from the same field of endeavor, namely the processing of image data for printing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to adjust the image data for color saturation according to a personal preference. The motivation for doing so would have been to improve the aesthetic appearance of the image (column 1, lines 5-7 of Mongeon). Therefore, it would have been obvious to combine Mongeon with Lin.

Lin in view of Mongeon does not disclose expressly that the image data is already rasterized.

Yamaguchi discloses processing continuous tone gray level image data that has already been rasterized (column 5, lines 11-13 of Yamaguchi). Raster image data would inherently be continuous tone gray level image data since said raster image data is used to represent a plurality of colors (column 5, lines 16-17 of Yamaguchi).

Lin in view of Mongeon is combinable with Yamaguchi because they are from the same field of endeavor, namely halftoning and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the system of Lin in view of Mongeon to image data that has already been rasterized, as taught by Yamaguchi. The motivation for doing so would have been that such a system would allow a user on a system with multiple users to perform real-time operations

without hindering printing operations by ordinary queue control (column 1, lines 51-57 of Yamaguchi). Therefore, it would have been obvious to combine Yamaguchi with Lin in view of Mongeon to obtain the invention as specified in claim 10.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 5,742,703) in view of Mongeon (US Patent 5,710,824) and Tai (US Patent 5,694,224).

Regarding claim 11: Lin in view of Mongeon discloses that the image data is adjusted for color saturation according to personal preference, as discussed in the arguments regarding claim 10, which are incorporated herein.

Lin in view of Mongeon does not disclose expressly that the image data is analyzed for contrast and in response to analysis for contrast blending coefficients are generated and the image data that is adjusted for color saturation is independently subjected to separate halftone screen processing with screens of different halftone frequencies and outputs of the processing by the different halftone screen processings are each modified by a respective blending coefficients.

Tai discloses that the image data is analyzed for contrast (column 9, lines 12-15 of Tai). In response to analysis for contrast, blending coefficients are generated (column 10, lines 28-34 of Tai). Said image data is independently subjected to separate halftone screen processing (column 8, line 56 to column 9, line 10 of Tai). The screens have different halftone frequencies (column 8; lines 56-57, lines 59-60 and lines 63-64; and column 9, lines 4-5 of Tai). The outputs of the processing by the different halftone

screen processings are each modified by a respective blending coefficients (column 10, lines 26-30 of Tai).

Lin in view of Mongeon is combinable with Tai because they are from the same field of endeavor, namely halftone printing and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to take the halftone data processed by the halftone processor of Lin (figure 2(84) of Lin) and process said halftone data based on the level of contrast calculated. Then, said halftone data is processed by a plurality of different halftone screens based on said level of contrast and blended before being output. The motivation for doing so would have been to print halftone dots in a manner appropriate to the level of contrast of the data (column 8; lines 58-59, lines 62-63 and lines 65-66; and column 9, lines 9-10 of Tai) and to prevent unnatural appearances in the image (column 8, lines 35-36 of Tai). Therefore, it would have been obvious to combine Tai with Lin in view of Mongeon to obtain the invention as specified in claim 11.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 5,742,703) in view of Yoshiaki (US Patent 5,574,833).

Regarding claim 12: Lin discloses smoothing edges using higher resolution image data (figures 4a-4d and column 8, lines 1-6 of Lin). Lin does not disclose expressly that the resolution enhancement processor is adjustable to provide for different levels of smoothing of edges.

Yoshiaki discloses that the resolution enhancement used for smoothing edges is adjustable (figures 4a-4f and column 3, lines 3-12 of Yoshiaki), thus providing different levels of smoothing of edges (column 3, lines 1-3 of Yoshiaki). The level of enhancement is adjusted based on the resolution of the input image, in this case a fax machine image, and the resolution of the output image, in this case a printer image (column 3, lines 3-12 of Yoshiaki). Therefore, the enhancement can be made by the selection of the fax machine, the selection of the printer, and the selection of the resolution of the printer if said printer can print in more than one resolution.

Lin and Yoshiaki are combinable because they are from the same field of endeavor, namely halftoning and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to make the resolution enhancement adjustable to provide for different levels of smoothing of edges. The motivation for doing so would have been to be able to provide smooth edges when the input data provided is of one resolution and the output data desired is of another resolution (column 4, lines 52-55 of Yoshiaki). Therefore, it would have been obvious to combine Yoshiaki with Lin to obtain the invention as specified in claim 12.

7. Claims 2, 13-15, 17-19 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 5,742,703) in view of Tai (US Patent 5,694,224).

Regarding claim 2: Lin discloses processing gray level image data through a halftone screen (figure 2(84) and column 8, lines 24-27 of Lin). Lin does not disclose

expressly that the gray level image data is processed independently through plural halftone screen processors and the output of the two processors are blended.

Tai discloses that the gray level image data is processed independently through plural halftone screen processors (column 8, line 56 to column 9, line 11 of Tai) and the output of the two processors are blended (column 10, lines 26-30 of Tai).

Lin and Tai are combinable because they are from the same field of endeavor, namely halftone printing and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to process the gray level image data using plural halftone screen processors and then blending two of said processors. The motivation for doing so would have been to print halftone dots in a manner appropriate to the level of contrast of the data (column 8; lines 58-59, lines 62-63 and lines 65-66; and column 9, lines 9-10 of Tai). Therefore, it would have been obvious to combine Tai with Lin to obtain the invention as specified in claim 2.

Regarding claim 13: Lin discloses a method for processing gray level image data (column 3, lines 1-3 of Lin). Said method comprises comparing the gray level of the halftone screen processed current pixel relative to a threshold criterion (column 7, lines 16-21 and column 8, lines 27-30 of Lin). Channel A stores the data it processes in Buffer 1 (column 8, lines 21-23 of Lin) and Channel B stores the data it processes in Buffer 2 (column 8, lines 38-40 of Lin). If the data in Buffer 1 is indicative of a text or line art region, then said data is output (column 8, lines 44-46 of Lin) after grayscale or sub-pixel enhancement has been performed (column 8, lines 1-6 of Lin). Such an indication requires that the data value is above a relatively high threshold value (column

7, lines 24-27 of Lin) and that a matching pattern is found (column 8, lines 18-20 of Lin). The matching criterion is a further thresholding criterion since it thresholds not just the current pixel, but the surrounding pixels as well to see if the current pixel is in a text or line art region (column 7, lines 40-46 of Lin). If the data in Buffer 1 is not indicative of a text or line art region, then the grayscale data in Buffer 2 is output (column 8, lines 46-47).

Lin further discloses that, if the gray level of the blended halftone screen processed current pixel meets said threshold criterion (column 7, lines 16-18 of Lin), then a gray level image enhanced processing modification of the current pixel (column 8, lines 1-6 of Lin) is provided for output to a printer or display (column 8, lines 42-47 of Lin).

Lin further discloses that, if the gray level of the blended halftone screen processed current pixel does not meet said threshold criterion (column 7, lines 16-18 of Lin), then the current pixel gray level as processed by the halftone screen processing is provided for output to a printer or display (column 8, lines 40-47 of Lin).

Lin does not disclose expressly subjecting first gray level image data to plural separate halftone screen processings to form plural separate halftone screen processed gray level image data; analyzing a current pixel of the first gray level image data for contrast index; in response to the analyzing, generating blending coefficients for processing that current pixel; and processing the plural separate halftone screen processed image data with the blending coefficients to blend halftone screen processed

gray level image data of the same current pixel to form a blended halftone screen processed gray level current pixel.

Tai discloses subjecting first gray level image data to plural separate halftone screen processings to form plural separate halftone screen processed gray level image data (column 8, line 56 to column 9, line 11 of Tai); analyzing a current pixel of the first gray level image data for contrast index (column 9, lines 12-15 of Tai); in response to the analyzing, generating blending coefficients for processing that current pixel (column 10, lines 28-34 of Tai); and processing the plural separate halftone screen processed image data with the blending coefficients (column 10, lines 26-37 of Tai) to blend halftone screen processed gray level image data of the same current pixel to form a blended halftone screen processed gray level current pixel (column 10, lines 37-39 of Tai).

Lin and Tai are combinable because they are from the same field of endeavor, namely halftone printing and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to process gray level image data at the halftone processor (figure 2(84) of Lin), as taught by Lin, with plural halftone screens, compute a contrast index for each pixel, generate respective blending coefficients, and then blend the halftone screens accordingly, as taught by Tai. The motivation for doing so would have been that halftone screen blending reduces printing artifacts (column 10, lines 57-63 of Tai). Therefore, it would have been obvious to combine Tai with Lin to obtain the invention as specified in claim 13.

Regarding claim 14: Lin discloses processing gray level image data through a halftone screen (figure 2(84) and column 8, lines 24-27 of Lin). Lin does not disclose expressly that, in the step of determining if the gray level of the blended halftone screen processed current pixel meets the threshold criterion, there are also examined gray levels of blended halftone screen processed neighboring pixels to the current pixel.

Tai discloses that gray levels of blended halftone screen processed neighboring pixels to the current pixel are also examined (column 9, lines 12-19 of Tai) in the step of determining if the gray level of the blended halftone screen processed current pixel meets the threshold criterion (column 9, lines 39-45 of Tai).

Lin and Tai are combinable because they are from the same field of endeavor, namely halftone printing and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to examine the neighboring pixels of the current pixel being examined in the step of determining if the gray level of the blended halftone screen processed current pixel meets the threshold criterion. The motivation for doing so would have been to determine which halftone screens are to be blended (column 9, lines 39-45 of Tai). Therefore, it would have been obvious to combine Tai with Lin to obtain the invention as specified in claim 14.

Regarding claim 15: The arguments regarding claim 4 are incorporated herein.

Regarding claim 17: Lin discloses that the current pixel meeting the threshold criterion has its gray level value adjusted to a maximum value before being processed by gray level enhanced processing (column 7, lines 16-20 and lines 24-27 of Lin). When the current pixel is processed by channel A, the grayscale value of said current

pixel is thresholded (column 7, lines 16-20 of Lin). Then, said current pixel saved as a single bit (column 7, lines 28-32 of Lin), which means that it is set to either on or off. Setting said current pixel to either on or off essentially the same as setting an 8-bit grayscale value to either 0 or 255, especially since the single bit value determines whether the entire pixel is either all black or all white. Therefore, if the grayscale value of said current pixel is above the threshold value, then said current pixel is adjusted to the maximum value. The thresholding operation is performed prior to gray level enhancement processing (figure 2(74,78) of Lin). In figure 2 of Lin, the binarization (figure 2(72) of Lin) occurs before the pattern matching (figure 2(78) of Lin). The pattern matching block involves in part the rendering of grayscale or sub-pixel image signals, which is essentially gray level enhanced processing (column 7, lines 38-44 and column 8, lines 1-6 of Lin).

Regarding claim 18: The arguments regarding claim 5 are incorporated herein.

Regarding claim 19: The arguments regarding claim 8 are incorporated herein. A binary image is inherently a substantially binary image.

Regarding claim 21: Lin discloses a method for processing gray level image data (column 3, lines 1-3 of Lin). Said method comprises halftone screening of the input grayscale image data (column 8, lines 24-27 of Lin). Lin further discloses that, if the halftone screen processed gray level value current pixel is substantially a maximum density pixel or is adjusted to be a substantially maximum density pixel (column 7, lines 24-27 of Lin), then said pixel is subjected to a gray level image enhanced processing modification (figures 4a-4d; column 8, lines 1-6 of Lin) to reduce jaggedness in an

image (column 11, lines 43-55 of Lin). If the grayscale value of a pixel is above a threshold value, preferably about 95% of maximum, then said pixel is binarized as fully black (column 7, lines 24-29 of Lin), thus setting said pixel to the maximum value. If said pixel is set to the maximum value, then said pixel is modified as a grayscale or sub-pixel image (column 8, lines 1-6 of Lin). Said pixel is thus adjusted for the purpose of smoothing jagged edges (column 11, lines 43-55 of Lin).

Lin does not disclose expressly subjecting first gray level image data to plural separate halftone screen processings to form plural separate halftone screen processed gray level image data; and blending halftone screen processed gray level image data of the same current pixel to form a blended halftone screen processed gray level value current pixel.

Tai discloses subjecting first gray level image data to plural separate halftone screen processings to form plural separate halftone screen processed gray level image data (column 8, line 56 to column 9, line 11 of Tai). Tai further discloses blending halftone screen processed gray level image data of the same current pixel (column 10, lines 28-34 of Tai) to form a blended halftone screen processed gray level value current pixel (column 10, lines 34-39 of Tai).

Lin and Tai are combinable because they are from the same field of endeavor, namely halftone printing and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use plural separate halftone screens to halftone process the grayscale pixels of the image and then blend the results of the plural halftone screens to obtain the resultant blended grayscale pixels. The

motivation for doing so would have been to be able to process an image with multiple types of image regions (column 10, lines 57-60 of Tai). Therefore, it would have been obvious to combine Tai with Lin to obtain the invention as specified in claim 21.

Regarding claim 22: Lin discloses plural halftone screen processings (figure 2(72,84) and column 7, lines 14-16 of Lin). Lin does not disclose expressly that said plural halftone screen processings include a halftone screen processing employing a partial dot growth pattern and a halftone screen processing employing a mix dot growth pattern.

Tai discloses a halftone screen processing employing a partial dot growth pattern and a halftone screen processing employing a mix dot growth pattern (column 4, lines 64-68 and column 6, lines 31-39 of Tai).

Lin and Tai are combinable because they are from the same field of endeavor, namely halftone printing and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a partial dot growth pattern for one of the halftone screens and a mixed dot growth pattern for the other halftone screen. The motivation for doing so would have been to take advantage of the different tonal characteristics and texture patterns of the partial and the mixed dot growth patterns (column 6, lines 33-34 of Tai). Therefore, it would have been obvious to combine Tai with Lin to obtain the invention as specified in claim 22.

Regarding claim 23: Lin discloses processing gray level image data through a halftone screen (figure 2(84) and column 8, lines 24-27 of Lin). Lin does not disclose expressly that the plural separate halftone screen processings comprise a halftone

screen processing suitable for a text type image and a halftone screen processing suitable for a pictorial image.

Tai discloses that the plural separate halftone screen processings comprise a halftone screen processing suitable for a text type image (column 10, lines 60-63 of Tai) and a halftone screen processing suitable for a pictorial image (column 10, lines 64-67 of Tai).

Lin and Tai are combinable because they are from the same field of endeavor, namely halftone printing and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a halftone screen that is suitable for text and a halftone screen that is suitable for a pictorial image. The motivation for doing so would have been to be able to process an image with multiple types of image regions (column 10, lines 57-60 of Tai). Therefore, it would have been obvious to combine Tai with Lin to obtain the invention as specified in claim 23.

Regarding claim 24: Lin discloses processing gray level image data through a halftone screen (figure 2(84) and column 8, lines 24-27 of Lin). Lin does not disclose expressly that the plural halftone screen processed gray level image data is blended according to blending coefficients.

Tai discloses that the plural halftone screen processed gray level image data is blended according to blending coefficients (column 10, lines 28-37 of Tai).

Lin and Tai are combinable because they are from the same field of endeavor, namely halftone printing and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to blend the plural halftone

screens according to blending coefficients. The motivation for doing so would have been to be able to render image regions where the contrast index is between the values given for the existing halftone screens (column 9, lines 39-45 of Tai). Therefore, it would have been obvious to combine Tai with Lin to obtain the invention as specified in claim 24.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 5,742,703) in view of Tai (US Patent 5,694,224) and Mongeon (US Patent 5,710,824).

Regarding claim 16: Lin discloses processing gray level image data through a halftone screen (figure 2(84) and column 8, lines 24-27 of Lin). Lin does not disclose expressly that the first gray level image data is color separation image data and that, prior to subjecting the first gray level image data to plural separate halftone screen processing, the gray level image data is subject to processing for gray component replacement and undercolor removal.

Tai discloses that the first gray level image data is color separation image data (column 7, lines 57-60 of Tai). Tai further discloses subjecting the first gray level image data to plural separate halftone screen processing (column 8, line 56 to column 9, line 11 of Tai).

Lin and Tai are combinable because they are from the same field of endeavor, namely halftone printing and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use color separation image

data. The motivation for doing so would have been to properly render color images (column 7, lines 59-60 of Tai). Furthermore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to subject the first gray level image data to plural separate halftone screen processing. The motivation for doing so would have been to print halftone dots in a manner appropriate to the level of contrast of the data (column 8; lines 58-59, lines 62-63 and lines 65-66; and column 9, lines 9-10 of Tai). Therefore, it would have been obvious to combine Tai with Lin.

Lin in view of Tai does not disclose expressly that the gray level image data is subject to processing for gray component replacement and undercolor removal.

Mongeon discloses subjecting color separation image data to processing for gray component replacement, referred to in Mongeon as "gray balance" and undercolor removal (column 2, lines 10-14 of Mongeon) prior to outputting to a device (figure 1(20→30); and column 1, line 66 to column 2, line 9 of Mongeon).

Lin in view of Tai is combinable with Mongeon are combinable because they are from the same field of endeavor, namely the processing of image data for printing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform gray component replacement and undercolor removal on the image data prior to plural halftone screen processing. The motivation for doing so would have been to adjust the color space so that the colors are calibrated for the desired output device (column 2, lines 1-9 of Mongeon). Therefore, it would have been obvious to combine Mongeon with Lin to obtain the invention as specified in claim 16.

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (US Patent 5,742,703) in view of Tai (US Patent 5,694,224) and in further view of *In re Dulberg* (289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961)).

Regarding claim 20: Lin discloses an apparatus for processing gray level image data (figure 2 of Lin). Said apparatus comprises an input (figure 2(70) of Lin) to two image data processing devices (figure 2(72,84) of Lin) to input image data representing a current gray level pixel (column 7, lines 14-16 of Lin). One of said image data processing devices (figure 2(84) of Lin) is a halftone screen processing device (column 8, lines 25-27 of Lin).

Said apparatus further comprises a detector (figure 2(78) of Lin) for examining the current pixel after image processing operations and neighboring pixels thereof after image processing operations (column 7, lines 40-46 of Lin) and determining if the current pixel and such neighboring pixels represent a substantially binary image file (column 7, lines 24-27 and lines 32-37 of Lin) and generating a signal (tag) relative to such determination (column 8, lines 18-20 of Lin).

Said apparatus further comprises a selector (figure 2(88) of Lin), responsive to the signal (tag), that selects either the gray level image enhancement processing device output or a bypass representing a halftone data output (column 8, lines 42-47 of Lin).

Lin does not disclose expressly that the two image data processing devices (figure 2(78,84) of Lin) are first and second halftone screen processing devices that form plural separate halftone processed screen gray level image data. Furthermore, Lin does not disclose expressly a device for analyzing the current pixel for contrast index; a

device responsive to the contrast index for generating blending coefficients; a blending operation processor that generates a blended halftone data output for the current pixel; an input at the blending operation processor for inputting respective outputs of the first and second halftone screen processing devices and the blending coefficients; and a gray level image enhancement processing device connected to the output of the blending operation processor.

Tai discloses first (figure 10a of Tai) and second halftone screens (figure 11 of Tai) that form plural separate halftone processed screen gray level image data (column 8, lines 56-63 of Tai). Tai further a device (figure 6(150) and column 7, lines 42-43 of Tai) for analyzing a current pixel for contrast index (column 9, lines 12-19 of Tai) and that is responsive to the contrast index for generating blending coefficients (column 10, lines 28-37 of Tai). The blending screen logic control device (figure 6(150) of Tai) analyzes each pixel and a corresponding neighborhood for contrast (column 9, lines 12-19 of Tai) and calculates a contrast index (column 9, lines 39-45 of Tai). Said blending screen logic control further generates blending coefficients based on said contrast index (column 10, lines 28-37 of Tai).

Tai further discloses a blending operation processor (figure 6(160) of Tai), referred to as a "unified rendering device" in Tai, that generates a blended halftone data output for the current pixel (column 7, lines 37-40 and lines 61-67 of Tai).

Tai further discloses an input (figure 6(150→160) of Tai) at said blending operation processor for inputting respective outputs of the first and second halftone screens and the blending coefficients. As can be seen from figure 6 of Tai, the outputs

of the blending screen logic control (figure 6(150) of Tai) are input to the unified rendering device (figure 6(160) of Tai). The outputs relating to the first and second halftone screens and blending coefficients are input to said unified rendering device for rendering and outputting (column 7, lines 37-40 of Tai).

Tai further discloses a gray level image enhancement processing device (figure 18(340) of Tai). The gray scale image mapper and tone adjustment device (figure 18(340) of Tai) enhances the gray level image data so that said image data can be tone adjusted (column 14, lines 23-31 of Tai) and displayed using a higher number of bits (column 14, lines 17-23 of Tai).

Lin and Tai are combinable because they are from the same field of endeavor, namely halftone printing and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a first halftone screen processing device in place of the binarizer (figure 2(72) of Lin) and a second halftone screen for the halftone screen processing device (figure 2(84) of Lin); include the blending screen logic control device (figure 6(150) of Tai), as taught by Tai, after the halftone screen processing devices, as taught by Lin; include the unified rendering device (figure 6(160) of Tai) that generates a blended halftone data output, as taught by Tai, after said blending screen logic control; and include an input (figure 6(150→160) of Tai) for inputting the outputs of the first and second halftone screen processing devices and the blending coefficients into said unified rendering device. The motivation for doing so would have been to be able to process an image with multiple types of image regions (column 10, lines 57-60 of Tai). Furthermore, it would have been obvious to a

person of ordinary skill in the art at the time of the invention to include a gray level enhancement processing device (figure 18(340) of Tai), as taught by Tai, connected to the output of said unified rendering device. The motivation for doing so would have been to adjust the image data so that the proper tone is displayed and for the proper bit-depth (column 14, lines 14-17 of Tai). Therefore, it would have been obvious to combine Tai with Lin.

Lin in view of Tai does not disclose expressly that the device for analyzing the current pixel for contrast index and the device responsive to the contrast index are separate devices. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to split the blending screen logic control device (figure 6(150) of Tai) into the two separate aforementioned devices and perform the functions of said blending screen logic control device as two separate devices since *In re Dulberg* has held that making elements separable is an obvious design choice if there is no unexpected result occurring from the separation that distinguishes over the prior art.

Response to Arguments

10. Applicant's arguments, see page 9, lines 2-8, filed 12 May 2004, with respect to the drawings have been fully considered and are persuasive. The amendments to the specification on pages 2-3 of Applicant's arguments have been noted. The objections to the drawings listed in item 2 of the first office action, dated 12 February 2004, have been withdrawn.

11. Applicant's arguments, see page 9, line 28 to page 10, line 15, filed 12 May 2004, have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., image enhancement on halftone screened images or parallel channel processing of the halftone processed screen image data; subjecting the gray level image data to halftone screen processing before the halftoned (HT) image data enter into the parallel path selection process) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Despite Applicant's assertion on page 10, lines 8-9 of Applicant's arguments dated 12 May 2004, said features are not specifically recited in claim 1.

12. Applicant's arguments, see page 10, lines 16-22, filed 12 May 2004, have been fully considered but they are not persuasive. Applicant simply asserts that Lin (US Patent 5,742,703) does not disclose the limitations of claim 3. However, the limitations of claim 3 are clearly disclosed by Lin, as discussed above in item 2, on pages 3-4, and on page 4 of the first office action, dated 12 February 2004.

13. Applicant's arguments, see page 10, lines 22-31, filed 12 May 2004, have been fully considered but they are not persuasive. While the specific word "variable" is not synonymous with the specific word "adjustable", if a halftoning threshold is variable,

then said threshold must inherently be adjustable since, without some form of adjustability (whether human or computer), said threshold cannot be variable. This is discussed in greater detail in the arguments regarding claim 4 listed in item 2, on page 4 of the present office action, and on pages 4-5 of the first office action, dated 12 February 2004.

14. Applicant's arguments, see page 10, line 32 to page 11, line 14, filed 12 May 2004, have been fully considered but they are not persuasive. Applicant simply asserts that Lin does not disclose the limitations of claims 5 and 6. Applicant does not show how the claims patentably distinguish over the prior art. Further, on page 10, line 33 to page 11, line 2, *Applicant argues* that Lin teaches "an at least 600x600 spi output (column 10, lines 36-45 of Lin), which is the output addressability of the printing system, not the halftone frequency of the output." *Examiner response:* Halftoning is the process of reproducing a continuous tone image as a series of various sized dots within a fixed grid that can be reproduced with ink. A halftone printer that prints at a resolution of NxN spi prints N spots per inch in the horizontal direction and N spots per inch in the vertical (screen frequency) direction. Therefore, if the output addressability of a halftone printing system is 600x600 spi, then the halftone screen frequency is 600 lines per inch, which is greater than 200 lines per inch, as claimed in claim 5. The detailed arguments regarding claims 5 and 6 are listed on page 5 of the first office action, dated 12 February 2004.

15. Applicant's arguments, see page 11, line 15 to page 12, line 7, filed 12 May 2004, have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., gray level enhancement that uses modified gray level pixels) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Claims 7 and 8, as amended, specifically state that "a substantially binary image file is modified with gray pixels" but do not state that said gray level pixels themselves are modified.

Applicant simply asserts that the limitations of claim 9 are not met based on the assertion that the limitations of claim 8 are not met. The detailed arguments regarding how Lin discloses the limitations of claims 7-9 are listed in item 2, on pages 5-6 of the present office action.

16. Applicant's arguments, see page 12, lines 8-24, filed 12 May 2004, have been fully considered but they are not persuasive. *Applicant argues* that "Mongeon does not show adjustment of color saturation of color separation file according to a personal preference (such as last minute changes by customers on an already rasterized image) as disclosed in the present Application (see FIG. 18 of the Application)." *Examiner response:* Lin in view of Mongeon and Yamaguchi discloses the limitations of claim 10, as amended, which is discussed above in the arguments regarding claim 10 on pages

6-8 of the present office action. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Therefore, Lin in view of Mongeon and Yamaguchi does not have to disclose exactly what is shown in figure 18 of the present application. The prior art of record simply needs to disclose the limitations of claim 10 as written.

17. Applicant's arguments, see page 12, line 25 to page 13, line 8, filed 12 May 2004, have been fully considered but they are not persuasive. Lin in view of Mongeon and Tai disclose all of the limitations of claim 11. The limitations that Lin, Mongeon and Tai disclose, the manner in which Lin, Mongeon and Tai are combined, and the motivations for combining Lin, Mongeon and Tai are discussed in detail in item 5, on pages 8-9 of the present office action. Applicant claims that combining Tai with Mongeon will create Moiré artifacts, thus attempting to establish a supposed benefit of the present application over the prior art. However, Applicant does not show how claim 11, as stated, patentably distinguishes over the prior art. Furthermore, in response to the contention that combining Tai with Mongeon will create Moiré artifacts, Applicant has provided no reference or sufficient supporting reasons for such a supposition.

18. Applicant's arguments, see page 13, lines 9-23, filed 12 May 2004, have been fully considered but they are not persuasive. Applicant asserts that the cited prior art does not teach the limitations of claim 12, but does not give a demonstrate how claim

12 patentably distinguishes over the prior art. The limitations of claim 12 are indeed disclosed by the prior art, as discussed above in the arguments regarding claim 12 listed in item 6, on pages 9-10 of the present office action.

19. Applicant's arguments, see page 13, line 24 to page 14, line 24, filed 12 May 2004, have been fully considered but they are not persuasive. Tai clearly teaches blending, as discussed in the arguments regarding claim 2, on pages 10 and 11 of the present office action. The manner in which Lin and Tai are combined along with the appropriate motivation are also discussed therein.

In response to applicant's argument that Lin and Tai do not teach using the blending halftone processed screen image for image enhanced processing, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Furthermore, said intended use is not recited in claim 2.

All of the limitations of claim 13 are taught in the cited prior art, as discussed above in the arguments regarding claim 13 on pages 11-13 of the present office action. Applicant claims that combining Tai with Lin will create Moiré artifacts, thus attempting to establish a supposed benefit of the present application over the prior art. However,

Applicant does not show how claim 13, as stated, patentably distinguishes over the prior art. Furthermore, in response to the contention that combining Tai with Lin will create Moiré artifacts, Applicant has provided no reference or sufficient supporting reasons for such a supposition.

20. Applicant's arguments, see page 14, line 25 to page 15, line 10, filed 12 May 2004, have been fully considered but they are not persuasive. The particular steps of the method of claim 14, which are discloses in Lin in view of Tai as discussed above in the arguments regarding claim 14 on page 14, perform what is, by definition, image enhancement. Furthermore, "image enhancement" is not specifically recited in claim 14. Claim 15 specifically discloses the same limitations that are disclosed in claim 4, which have already been discussed in item 13 and in item 2, on page 4 of the present office action.

21. Applicant's arguments, see page 15, line 11 to page 16, line 5, filed 12 May 2004, have been fully considered but they are not persuasive. Applicant alleges that the cited prior art does not disclose the limitations of claim 17, but does not demonstrate how claim 17 distinguishes over the prior art. The arguments regarding claim 17 are provided in detail in item 7 on pages 14-15 of the present office action. Claim 18 discloses the same limitations disclosed in claim 5, and has therefore already been discussed in item 14 of the present office action. Claim 19 discloses the same

limitations disclosed in claim 8, and has therefore already been discussed in item 15 of the present office action.

22. Applicant's arguments, see page 16, line 6 to page 17, line 12, filed 12 May 2004, have been fully considered but they are not persuasive.

The claims limitations specifically recited in claims 21 and 22 have been disclosed by Lin in view of Tai, as discussed above in item 7, on pages 15-17 of the present office action, along with a description of how Tai combines with Lin and the appropriate motivation to combine Tai with Lin.

In response to page 16, lines 15-20 of Applicant's arguments dated 12 May 2004, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

On page 16, lines 24-26 of Applicant's arguments, Applicant states that Channel A of Lin only does enhancement on binarized continuous tone input image and that neither Lin nor Tai teach image enhancement of halftoned image. *Examiner response:* A binarized continuous tone image is, by definition, a halftoned image. Halftoning is the

process of reproducing a continuous tone image as a series of various sized dots within a fixed grid that can be reproduced with ink.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., image enhancement of the blended halftone data) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Despite Applicant's contention, said feature is not specifically disclosed in claim 22.

23. Applicant's arguments, see page 17, line 13 to page 18, line 11, filed 12 May 2004, have been fully considered but they are not persuasive. The limitations of claims 23 and 24 have been disclosed by Lin in view of Tai, as discussed above in item 7, on pages 17-19 of the present office action. Applicant argues that only one of the channels of Lin is halftoned. *Examiner response:* As discussed in item 22 above, both channels perform halftoning. Applicant does not show how claim 23 and claim 24 patentably distinguish over the prior art of record. Furthermore, Applicant states that claim 23 and claim 24 are not taught by Lin and Tai. However, claims 23 and 24 are taught by the combination of Lin and Tai, which is discussed above in the arguments regarding claim 23 and the arguments regarding claim 24 in item 7, on pages 17-19 of the present office action.

24. Applicant's arguments, see page 18, line 12 to page 19, line 2, filed 12 May 2004, have been fully considered but they are not persuasive. Applicant states that Lin, Tai and Mongeon do not teach the limitations of claim 16. Lin, Tai and Mongeon do indeed teach, *by combination*, the limitations of claim 16. Item 8, on pages 19-20 discusses the various limitations met individually by Lin, Tai and Mongeon, the manner in which they are combined, and the corresponding motivation for combining each reference. Together, Lin in view of Tai and Mongeon fully disclose the limitations of claim 16.

25. Applicant's arguments, see page 19, line 3 to page 20, line 6, filed 12 May 2004, have been fully considered but they are not persuasive. The limitations as specifically recited in claim 20 are disclosed by Lin in view of Tai and *In re Dulberg*, as discussed above in the arguments regarding claim 20 in item 9, on pages 21-24 of the present office action.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., anti-aliasing edge enhancement with halftone processed image) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Despite Applicant's contention on page 19, lines 24-25, said feature is not specifically recited in claim 20.

Applicant argues on page 19, line 31 to page 20, line 3 of Applicant's arguments dated 12 May 2004, that it would not be obvious to split the blending screen logic control device of Tai into two separate devices since the functions of the two devices are different. *Examiner response:* The two devices, specifically the device for analyzing the current pixel for contrast index and the device responsive to the contrast index, operate one after the other. The first of the two devices analyzes the current pixel for contrast index. Then, the second of the two devices is responsive to said contrast index. In Tai, these two functions occur one after the other, but are embodied in a single device. Splitting the two functions of the blending screen control logic (figure 6(150) of Tai) into two separate devices accomplishes the same functions since the output produced by the first function is used as the input to the operations of the second function. Furthermore, said blending screen control logic is a generic computational device, such as a CPU, and therefore the various functions can be demarcated as separate devices. Additionally, Applicant has not given demonstrated an unexpected result that would occur as a result of splitting said blending control screen logic into the two separate devices.

Conclusion

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A Thompson whose telephone number is 703-305-6329. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson
Examiner
Art Unit 2624

JAT
July 26, 2004

THOMAS D.
~~TOMMY~~ LEE
PRIMARY EXAMINER